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Approach to Diagnosis and Therapy of Back Pain
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Introduction
While one of the most common complaints related to athletic performance of the sport horse, the diagnosis of back pain can be complex. The signs are easy enough to recognize, however the underlying cause may be perplexing. The rider or trainer may perceive that a horse has back pain from a number of clinical signs. These may include sensitivity to grooming and saddling, resistance to rider weight, stiffness, pain on manual palpation of the back, and poor jumping performance. Many of these symptoms may arise as secondary issues to other lameness problems, particularly of the hind limb, and the difficult issue is determining the origin of the problem. Back pain may be due to secondary muscle strain related to hind limb lameness producing an altered gait, primary muscle strain related to athletic effort or a fall, impingement of dorsal spinous processes, strain of the sacroiliac ligament, poor saddle fit, inflammation of the supraspinous ligament, trauma to spinous processes, and facet joint arthritis to name a few. A thorough physical examination, coupled with a complete therapeutic approach can most frequently relieve symptoms of back pain.

Physical examination
The examiner should first attempt to rule out lower limb problems as a cause for the development of back pain. Hind limb lameness such as distal tarsitis, chronic proximal suspensory desmitis, and gonitis may contribute to significant muscle soreness in the low back because of an altered leg swing related to a resistance to flex the lower limb or bear weight. Chronic forelimb soreness, particularly foot soreness, may contribute to back pain in the jumper because of an inverted way of going that attempts to protect the forelimbs on landing after a jump. Something as simple as an ill-fitting saddle can be the source of significant pain and should be considered. Bad teeth that cause mouth pain and an inverted way of going may lead to back pain. The horse’s neck should be carefully evaluated for painful responses as well. The examiner needs to develop confidence in his or her palpation technique and trust the observations made. It may take considerable time to develop a cautious and smooth palpation technique that elicits true pain responses but doesn’t startle the horse. A complete physical examination should include palpation, passive and active flexion tests, jogging, lunging and riding the horse, and imaging as indicated by the physical examination. Radiography and ultrasound are very valuable tools in the evaluation of back pain. Modern digital radiography makes diagnostic radiographs of the back possible with portable x-ray machines and ultrasound examination may reveal joint and soft tissue abnormalities of the neck and back.

Thoracolumbar region
The thoracolumbar area is the most often found locally painful region of the back. Pain to palpation along the longissimus muscles concurrently with sensitivity to palpation over the superficial and middle gluteal muscles is often an indicator of problems in the
lower hind limb. The examiner should evaluate the hind limbs in such cases to rule out commonly encountered lower limb issues such as distal tarsitis, chronic proximal suspensory desmitis or gonitis.

Pain along the dorsum of the back may be a sign of inflammation of the supraspinous ligament or impingement of dorsal spinous processes. These conditions may have significant effects on the horse when working under saddle. Under saddle, the horse may move with a shortened stride behind and the back may appear to be “hollowed out” (lordosis). The horse may resent the weight of the rider sitting in the tack evidenced by tail wringing and a raised head carriage. It has been claimed by some practitioners that local anesthesia (10-20 cc mepivicaine) of a palpably painful area frequently changes the horse’s way of going and confirms the source of pain. This technique may not really identify the locus of pain in many cases. The anesthetic removes some local pain and proprioception and thereby changes function. This may just change how the horse uses it back and perceives various stimuli. Therefore, this technique may not be all that useful in actually localizing the source of pain but is an indication of dysfunction nonetheless.¹

Spinous process impingement may demonstrate significant radiographic lesions presenting as narrowed spaces with proliferation, sclerosis, and lysis of vertebral spines. Scintigraphy may demonstrate increased uptake in the affected region but the investigator needs to be aware of summation from deeper structures on dorsal views. Ultrasound examination of the dorsal spinous processes and associated tissues with a 5-8 MHz linear probe may reveal thickening and/or edema of the supraspinous ligament as well as osteophytes of the dorsal spines. Both of these conditions may be effectively handled by local injection of corticosteroids, with or without pain relieving agents, between the spinous processes of the painful area using two to three and one half inch needles (up to six inches in the withers area). If significant bony lysis is present between the spinous processes, tiludronate given in an intravenous bolus (500 mg) in liter of saline over 30 minutes may be helpful in reducing pain related to bone lysis.

Soreness of the lumbar musculature may result from primary strain due to extreme jumping effort or an accident such as a refusal or a twisting fall. Facet joint arthritis of the lumbar vertebrae may produce significant spasm and pain. Ultrasound examination of the lumbar facet joints is performed using a 4-6 MHz curvilinear or sector probe, and identification of arthritic joints is possible. Symptomatic relief maybe achieved in many cases with NSAIDS such as flunixin meglumine, ketoprofen, or naproxen. The addition of methocarbamol at 7.5-10 grams BID may be of benefit. Acute strain may be accompanied by considerable spasm that will be evident as very firm, painful musculature. Icing these areas in the acute situation will increase comfort. Later hot packs and therapeutic ultrasound will reduce pain and inflammation. Accurate injection of facet joints using ultrasound guidance may be performed; however the author has seen benefit from injection of corticosteroids locally without being certain medication was actually in the joint. According to Denoix² this is due to the fact that the heavy fascia associated with the multifidus muscles retains the medication in the region providing

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¹ Carbocaine-V, Pharmacia & Upjohn Company, Division of Pfizer, Inc., N.Y., N.Y., USA 10017
² Depo Medrol and Predef 2X, Pharmacia & Upjohn Company, Division of Pfizer, Inc., N.Y., N.Y., USA 10017
³ Sarapin, High Chemical Company, Levittown, PA, USA 19056
⁴ Tildren, Ceva Sante Animale, 33500 Libourne, France
more of a local effect rather than just being absorbed into the general circulation. Estrone sulfate has been anecdotally reported to be of benefit in treating chronic back pain. It may be most beneficial in older geldings for improving muscle tone.

Acupuncture would appear to be a very useful adjuvant to previously mentioned therapies for lumbar pain. Repeat therapies are most likely to be of the greatest benefit on a long-term basis. Chiropractic manipulation may be of some benefit in relieving pain and muscle spasm in the low back but again most information on this is anecdotal. Pulsating magnetic field therapy is often used on a long-term basis for the treatment of low back pain and in relieving symptoms of muscle pain and spasm. Ultrasound therapy may prove very useful for the treatment of more superficial muscle soreness.

Extracorporeal Shock Wave Therapy (ESWT) has been shown to be effective in the treatment of back pain. The application of this technique would appear at the least to be effective in pain management, but further evaluation of this technique is needed to determine if there is any curative or disease modifying function.

**Withers**

Pain in the withers region may produce very poor jumping performance. Discomfort in this region may affect the horse’s ability to “round his back” over a jump thus affecting the shape of the jump. Poorly fitting saddles, strain from jumping and direct trauma from falls may all lead to development of pain in the withers. In the case of poor saddle fit, the solution is obvious, however the very fact that the saddle doesn’t fit may elude even the most experienced horseman. Many horsemen try to force the saddle forward on the shoulders and withers rather than allowing the saddle to settle in behind the withers at the shoulders. This practice may produce some local soreness. Horses with sore withers may demonstrate sensitivity to pressure on the sternum. Local therapy for soreness in the withers may be treated as described for spinous process impingement. Local injection of corticosteroids (with or without Sarapin®) will require the use of longer needles (3-6 inches). Chiropractic manipulation and acupuncture may aid in relieving discomfort. Severe trauma and fractures as sometimes seen from following over backward require long-term lay-off (6-12 months) for recovery.

**Lumbosacral region**

Sacroiliac strain is common in the jumping horse. There is far more motion in the lumbosacral joint than in the sacroiliac and the pain may be coming for this joint instead of the sacroiliac. The sacroiliac, however, has multiple ligamentous attachments to the axial skeleton that may be subject to trauma. Many horses are mildly affected on a chronic basis and continue to perform, although soreness in the region is evident. In more severe cases, jumping performance is usually significantly compromised and the horse is distinctly lame, usually more obviously on one leg. Horses that were good performers suddenly don’t want to jump. The horse often stands with a stretched out posture and may rest one hind limb. Palpation over the lumbosacral area produces a painful response. More pain may be perceived by exerting more pressure on one tuber sacrale. There may be considerable resistance on the part of the horse to have one of the hind legs picked up and flexed high. Rocking the pelvis may cause the horse to grunt. In cases of sacroiliac pain, lameness may be apparent in the opposite hind limb following an upper limb

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*Estrone, 5 mg/ml Injectable, Wickliffe Veterinary Pharmacy, Lexington, KY USA*
flexion test. The horse may be observed to have one more prominent tuber sacrale when viewed from behind, but this is not a certain indicator of recent injury. The appearance of a “jumper’s bump” has been associated with sacroiliac strain; however this may be more of a conformational matter than a sign of pathology. Some veterinarians report being able to reduce lameness or temporarily alter the horse’s way of going with local anesthetic infiltrated deeply over the sacroiliac, but this can be tricky with a misplaced injection causing difficulty for the horse to stand. Caution should be taken when performing this technique. Nuclear scintigraphy can be useful in assessing if significant inflammation is present in the area. Rectal ultrasound can be employed to visualize bony lesions of the lower lumbar vertebral body articulations and the sacroiliac joints. Abnormalities of the lumbosacral joint should be carefully noted. Additionally, the foramina for the last lumbar and sacral nerve roots may be imaged.

Rest and time are the two most significant factors in treating serious injuries of the sacroiliac. In the case of severe strain, which is likely to be accompanied by sudden onset lameness, healing of the injured tissue will likely require six months or longer. The horse should be stall rested for thirty days followed by two to three months controlled paddock rest (tranquilized at first, if necessary). Following this, light exercise on flat surfaces with a gradual increase in the amount of work over the next three months will allow time for healing and regaining strength in the affected area. Deep injection of the sacroiliac joint region may be of benefit and will be described later. Acupuncture therapy for local pain and muscle spasm has been useful during convalescence in the authors’ experience. ESWT may have a pain relieving effect as well as stimulating a healing response. Work with this technique is proving promising.

Horses with less severe injuries of the lumbosacral and sacroiliac joints may continue in work and receive local therapy for soreness. Injection of corticosteroids with/without Sarapin® over the sacroiliac may significantly reduce pain. There are two commonly used techniques for injection of the lumbosacral and sacroiliac joints. The first involves using a six to ten inch needle that is placed along the cranial edge of one tuber sacrale and directed obliquely across the midline to the medial aspect of the opposite tuber sacrale. The needle is then directed along the medial surface of the ilium toward the sacrum as deeply as possible. This may require slightly bending the needle to accommodate placement. The area is then infiltrated with a corticosteroid (and Sarapin® solution according some practitioners). Ultrasound guidance may be useful but is not necessary for this technique. In the second technique, ultrasound is used to visualize the needle passing deep to the wing of the ilium in a direction parallel to the spinal column and directed obliquely to reach the lumbosacral joint and the cranial aspect of the sacroiliac. The caudal aspect of the sacroiliac is then visualized from a spot caudal to the tuber sacral with the probe placed transversely to visualize the wing of the sacrum. A six inch needle is directed ventrally to the sacral wing at the caudal margin of the sacroiliac joint. Approximately 5 ml of corticosteroid solution is deposited at each site. The author’s preference is Predef 2X® (10-20 mg) with or without Depo Medrol® (100 mg) and diluted with saline or Sarapin®. Infiltration of acupuncture points (BL 25, 26, 27) parallel to the sacrum with the same solution can also be performed at this time. This technique has proven effective in relieving pain from minor to moderate strains and chronic arthritis. Local mesotherapy may be of similar benefit. Some veterinarians advocate the use of irritant agents such as iodine solutions to stimulate healing of the
sacroiliac ligament. This carries risk for serious side effects (cellulitis and abscesses) when placed over the dorsal aspect of the back and has not been employed by the author. Refractory cases have been reported to respond to injection of the sacroiliac with bone marrow-blood, stem cells, and other tissue stimulating factors.

Chiropractic manipulation is often attempted in cases of sacroiliac injury. While chiropractic is very useful in identifying the nature of the problem in some cases and may be helpful in mild cases of strain, manipulation in more severe cases will not replace the need for rest and healing time.

A regular schedule of acupuncture can be of benefit in relieving local discomfort. Pulsating magnetic field therapy is often used on a long-term basis for sacroiliac injury and appears to be of some benefit for pain relief. Therapeutic ultrasound is helpful for pain and spasm when used over the adjacent musculature. Cold laser may have some benefit for the treatment of local acupuncture points in cases of chronic sacroiliac strain.

References:

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